

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-016339**Date Inspected:** 20-Aug-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1630**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). Field Splice E1/E2
- B). Field Splice E2/E3
- C). Weld Repair Re: AB/F-SUB-001503 R00
- D). Field Splice E5/E6

A). Field Splice E1/E2

The QAI was informed by John Pagliero that QC had completed and accepted the MPT and the UT and was requesting QAI verification on the welds identified as WN: 1E-2E-A-LS1 through LS3. At approximately 1140, the QAI performed a random magnetic particle test and an ultrasonic verification test of the Complete Joint Penetration (CJP) groove welds. A total area of approximately 10% was ultrasonically tested to verify the weld and testing by QC meet the requirements of the contract documents. The examination was performed in accordance with the contract specifications and a MPT report TL-6028 and a UT report TL-6027, was generated on this date. For additional information see Summary of Conversations.

B). Field Splice E2/E3

The QAI observed the welder, James Zhen, perform the Complete Joint Penetration (CJP) welding on the

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longitudinal field splice identified as WN: 2E-3E-A-LS6. The welding was performed on the "A" face of the weld joint utilizing the Shielded Metal Arc Welding (SMAW) as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and the weld inspection was performed by John Pagliero utilizing the WPS as a reference. The QC inspector verified the DC welding parameters and were observed and recorded by the QAI as 126 amps.

The QAI observed the welder, Xiao Jian Wan ID-9677 correcting the excessive root opening of the weld joint utilizing the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0. This work was not completed on the longitudinal stiffener field splice identified as WN: 2E-3E-A-LS2 and the inspection was performed by the QC inspector utilizing the WPS as a reference. The QC inspector verified the DC welding parameters and were observed and recorded by the QAI as 121 amps. The welding of the longitudinal stiffeners was performed in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical. The minimum preheat temperature of 100 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents.

### B). Weld Repair, Re: AB/F-SUB-001503 R00

The QAI observed the field welding of the new longitudinal shear plate located west of PP13 at the Orthotropic Box Girder (OBG) identified as lift 2W. The Complete Joint Penetration (CJP) groove weld was performed by Fred Kaddu ID-2188 utilizing the Shielded Metal Arc Welding (SMAW) as per the Welding Procedure Specification identified as ABF-WPS-D15-1010 Rev.1 and was also utilized by the Quality Control (QC) Inspector Mike Johnson as a reference to monitor and verify the Direct Current Electrode Positive (DCEP) welding parameters. The welding was performed in the vertical (3G) position with the work placed in the vertical plane and the horizontal (2G) position with the work in an approximate vertical plane and the groove approximately horizontal. Later in the shift the QAI observed the QC inspector verifying the welding parameters and was noted as 133 amps. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was verified and monitored by the QC inspector.

### C). Field Splice E5/E6

The QAI observed the Ultrasonic Testing (UT) on the "A" face of the side plate field splice identified as WN: 4W-5W-E1 and E2. The testing was performed by the QC technician Tom Pasqualone utilizing a G.E. /Krautkramer USM 35X and the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4. The QC technician performed the required longitudinal wave testing for base metal soundness followed by the shear wave technique during the testing for weld soundness which was performed utilizing a .75 x .75 rectangular transducer. The UT was not completed on this date.

### QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified

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by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs below illustrate the work observed during this scheduled shift.



### Summary of Conversations:

There were general conversations with Quality Control Inspector John Pagliero, Steve McConnell and Tom Pasqualone at the start of the shift regarding the location of American Bridge/Fluor welding personnel and inspection/ N.D.E. testing scheduled for this shift.

At 1145, the QAI contacted the assistant Field QC Supervisor regarding the request by the QC inspector John Pagliero. Mike Johnson was the responsible personnel on this date due to the absence of Leonard Cross. Mr. Johnson confirmed the request and inquired the QAI to commence the UT and MPT verification of the deck plate longitudinal field splices.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Reyes,Danny	Quality Assurance Inspector
<b>Reviewed By:</b>	Levell,Bill	QA Reviewer

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